EVALUATION OF SPECIALIZED INFORMATION CENTRES

REPORT I

PROGRAM OVERVIEW

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Evaluation of Specialized Information Centres: Program Overview

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I

INTRODUCTION

Definition

1.1 One of the definitive documents on information systems in general, and specialized information centres* (SIC's) in particular, is a report of the U.S. President's Science Advisory Committee entitled "Science, Government and Information" (1963) (1). The following paragraph encapsulates the argument for specialised centres:

> "Science can ultimately cope with the information expansion only if enough of its most gifted practitioners will compact, review and interpret the literature both for their own use and for the benefit of more specialized scientists... Recognition of the importance of such scientific middlemen is discernible in the proliferation of so called specialized information centers where information is digested and interpreted. The Panel views the specialized information center as one way to ultimate resolution of the scientific information crisis." (1. page 14)

This highlights the fact that, while there is a need for an inventory of available information in the way that, for example, AGRIS supplies a global agricultural inventory, there is also a need for evaluation, selection and synthesis of information on more specific topics, and these are the three activities that distinguish an SIC. The retrieval and supply of documents is not the same thing as the retrieval and supply of information.

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* Variously called Specialized Information Analysis Centers and Specialized Information Centres. Hereafter referred to as "SIC's."

The scientist needs the information contained in the published literature, not the literature itself. Development users such as extension specialists, need information synthesized or repackaged into a more easily assimilated form. Therefore, the clients of an SIC may include the scientist in the special field or in a field relating to it; the technologist; the administrator or manager; the extension worker. The activities of evaluation, selection and synthesis can only be done effectively in close contact with working researchers, hence the practice of locating centres at institutions which are themselves "centres of excellence" in the subject matter. This allows close collaboration between documentalists and researchers, and in the ideal SIC, they are both involved in producing state-of-the-art reviews, running question-and-answer services, preparing abstracts, newsletters, etc. In summary, therefore, the essential characteristics of a specialized information centre are as follows:

- it deals with a specific, fairly narrow, field of scientific enquiry;
- it evaluates, selects and synthesizes information for the users;
- it employs the services of both documentalists and of scientists working in the special field, hence the preferred location in a "centre of excellence."

Information and Research

1.2 The basis of this and subsequent reports is that the information process is an integral part of research and development. The research and development (R & D) process cannot take place without communication within it, and between it and the rest of the world. Information is the medium of communication and its production is not an end in itself, but a means of connecting the various elements of the R & D process so that it works in a systematic and not a disorganized way. Thus, information as a medium of exchange is employed universally throughout the research process and is inextricably bound up in it. An important implication of this basic proposition is that an information system is not adequately evaluated by examining its product in an isolated way; the success or failure of any system is bound up in the success or failure of the research process itself. Of course a research process could fail in spite of having a good information system and to that extent the system can be judged separately. But given that a good information system is a necessary condition for successful research, it is difficult to disassociate its evaluation from that of the research process that it serves.

1.3 Also for the R & D process to function efficiently, the production of information by the scientist and the handling of information by the documentalist should not be considered as separate activities. The work of the documentalist should not be viewed as outside the scientific domain. Nor should the scientist consider

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himself above the necessity to pay attention to communication matters. These beliefs are central to the concept of specialized information centres.

1.4 In the early days of scientific enquiry, the universe of activity being relatively small, the approach to communication was casual and often focussed on a "world authority" in any given field. Disciples in the field would relate their work and communication needs to the authority. As means of transportation and reproduction of printed material advanced, conferences and journal publications became important. The number of people working in any given field was still relatively small and the communication problem manageable. However, as the exponential growth curve of scientific activity became almost vertical, bringing with it the so-called "information explosion", these means of communication became rapidly inadequate. As well as specialization in scientific research being heralded as more efficient, it also tended to occur from force of necessity, the scientist feeling obliged to narrow his interest to subject matter upon which he was able to keep himself informed. The dangers of this are clear, for in an important sense, science is indivisible. The world faces problems that cannot be solved by the application of an ever-increasing number of unconnected specialty fields. The problem has now become two-fold. First, to ensure that scientists working <u>within</u> a particular field know of each other's activities and results; and second, to facilitate relevant communication <u>between</u> specialist fields.

1.5 The "invisible college" is the term used to describe the dispersed group of scientists working in similar fields. The college membership, particularly in industrialized countries, is composed of an elite, who meet at international conferences, exchange papers and use the international telephone system. In developing countries, and particularly in poorly endowed fields of research, there is much less cohesion mainly because most of the members are not rich enough to use international travel, postal and telephone services to the extent necessary. Thus there exists the need to make the invisible college more "visible" in order to provide its members with the opportunity for information exchange and cooperation. One of the aims of the SIC'S is to meet this need.

Information Sciences Division (IS)

1.6 The Information Science Division of IDRC was born from the recognition of the integral role of information in the research process. The statute under which the Centre was established declares the main mandate to be the initiation, encouragement, support and conduct of research - research being defined as including:

> "any scientific or technical enquiry or experimentation that is instituted or carried out to discover new knowledge or new means of applying existing knowledge to the solution of economic and social problems."

The Centre is also empowered by the Act to establish, maintain and operate information and data centres. In

pursuing this mandate, the Centre has used its resources in partnership with developing countries to generate new knowledge through funding research in three main areas, (agriculture, health and social sciences) and through the IS Division, to establish mechanisms to make existing knowledge available for research and development. The IS Division has thus remained distinct from the other three divisions in that it has focussed on research support functions as opposed to research itself. It has not funded research in the science of information per se in the way that, for example, the Health Sciences Division has supported health science research. This distinction is important, because it means that the products of IS supported projects have different characteristics to those of the other three divisions. The benefits of a project to (say) reduce losses in cowpea storage are tangible and can be ascribed an economic value in terms of what people are prepared to pay for cowpeas. However, the value of the abstracting service of an information system, (for which people are less willing and/or less able to pay), is less simple to ascertain. In a pure sense, much of the "real" value of the information service would lie in the resolution of the cowpea storage problem in three years rather than six, by having facilitated research communication to focus on the key problems and to avoid duplication of effort.

1.7 Each year millions of items of information are generated on research and development. Existing information services cannot cope with them adequately, and many of the services

are tuned to the needs of the industrialized countries. In terms of the Centre's goals, the people most in need are often the poorest informed, and the resources in the developing countries that can be devoted to information systems and services are very limited. Expressed idealistically, the objective of the IS program is to work towards the situation:

> "where any piece of existing information can be promptly made available to any individual who needs it in connection with his development activities, and that this piece of information will be delivered in a form that the individual will understand and will not be cluttered with extraneous information irrelevant to his needs." (2, page 1)

The IS Division aims at achieving this objective by promoting and supporting:

- international cooperative information systems, in broad areas such as agriculture (AGRIS, AIBA), development planning (DEVSIS , INFOPLAN), population (POPIN, DOCPAL, PIDSA), education (IERS), and so on;
- specialized information centres (see para. 1.8 below);
- library development, including training;
- computer systems, software packages (MINISIS);
- national infrastructure;
- cartographic information.

The specialized information centres constitute a key

component of the IS program. Current plans are to continue their establishment at about two centres per year, mainly in agriculture.

The Specialized Information Centres Program

1.8 Between 1972 and 1980, the IS Division promoted the establishment of ten specialized centres. Two more are at the Project Notification Memorandum (PNM) stage at the time of writing. Table 1 lists the centres and their host institutions.

As Table 2 and Figure 1 show, the emphasis has been on agriculture, matching the emphasis of IDRC's overall budget allocation. Centres have been established in Cassava, Irrigation, Grain Legumes, Sorghums and Millets, and Coconuts.

The two PNM's concern Buffalo, and Dates and Palms. Other fields have been Geotechnical Engineering, Packaging, Ferrocement, Rural Youth, and Sanitation*. Three Centres have been based in the International Agricultural Research Centres (IARC's) as "centres of excellence"; three have

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* The list excludes a small project at the International Bee Research Association (IBRA) in England to produce selective biographies on apicultural topics relevant to developing countries. This was not a project to establish a centre, since IBRA is already well established. Also, the activities were weighted more to evaluation and selection of material, rather than synthesis. Thus it is a marginal candidate for inclusion. Total project cost was $22,000.

been placed in the Asian Institute of Technology; and the remainder in national or regional institutions. In the case of the Irrigation Centre, a company limited by guarantee under Israeli law was specifically created as a host institution.

Evaluation Criteria

1. 9 As well as the natural desire to demonstrate value for money and to improve program effectiveness, some of the criteria that can be used to select a program for evaluation are previous funding, present commitments, future plans and management requests.

As Table 2 indicates, the specialized information centre "program" is significant in terms of spending to date (more than $2 million), current commitments (about $1 million), and policy intentions. The proposed continuation of the program at the rate of two or more centres per year is evidence of the importance that IDRC attaches to this activity. Several suggestions have been made by the Board of Governors that the experience gained should be assessed and the results used in the planning of any new centres (3, pages 27, 67 and 97).

TABLE 1: General Information on the Specialized Information Centres

Title of Centre	Short form or acronym	Recipient Institution and location
1. Asian Information Centre for Geotechnical Engineering[1/]	AGE	Asian Institute of Technology (AIT), Regional Documentation Centre (RDC) - Thailand
2. Cassava Information Centre	Cassava	Centro Internacional de Agricultura Tropical (CIAT)-Colombia
3. International Irrigation Information Centre	IIIC	International Irrigation Information Centre - Israel
4. Asian Packaging Information Centre	APIC	Hong Kong Packaging Council
5. Grain Legume Information Centre	Grain Legume	International Institute of Tropical Agriculture (IITA)-Nigeria
6. Sorghums and Millets Information Centre	Sorghums & Millets	International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) - India
7. International Ferrocement Information Centre	IFIC	Asian Institute of Technology (AIT) - Thailand
8. Rural Youth Documentation Centre	Rural Youth	Inter-America Rural Youth Secretariat, Inter-American Institute of Agricultural Sciences (IICA) - Costa Rica
9. Environmental Sanitation Information Centre	ENSIC	Asian Institute of Technology (AIT) - Thailand
10. Coconut Information Centre	Coconuts	Coconut Research Institute - Lunuwila, Sri Lanka
11. International Buffalo Information Centre	Buffalos	Kasetsart University - Thailand
12. Dates and Palms Information Centre	Dates and Palms	NENADATES - Iraq

1/ Originally called Soil Engineering Information Centre.

Table 2: Budget and Expenditure Data on Specialized Information Centres 1972-80

Centre	Budget Data			IDRC spending to June 1980
	IDRC	Recipient	Total	
		($'000)		
1. AGE	279	146	425[1/]	231
2. Cassava	276	142	418	253[2/]
3. Irrigation	1,410	556	1,966[3/]	855
4. Asian Packaging	50	65	114	50
5. Grain Legumes	464	118	582	321
6. Sorghums and Millets	307	65	372	167
7. Ferrocement	81	216[4/]	297	39
8. Rural Youth	43	18	61	32
9. Sanitation	122	96	217	85
10. Coconuts	202	33	235	67
11. Buffalo[5/]	381	80	461	-
12. Dates and Palms[5/]	123	112	235	-
TOTAL[6/]	3,738	1,647	5,383	2,129

1/ - Includes budget for small Phase III approved and due to terminate in 1983.

2/ - Centre now financed by CIAT.

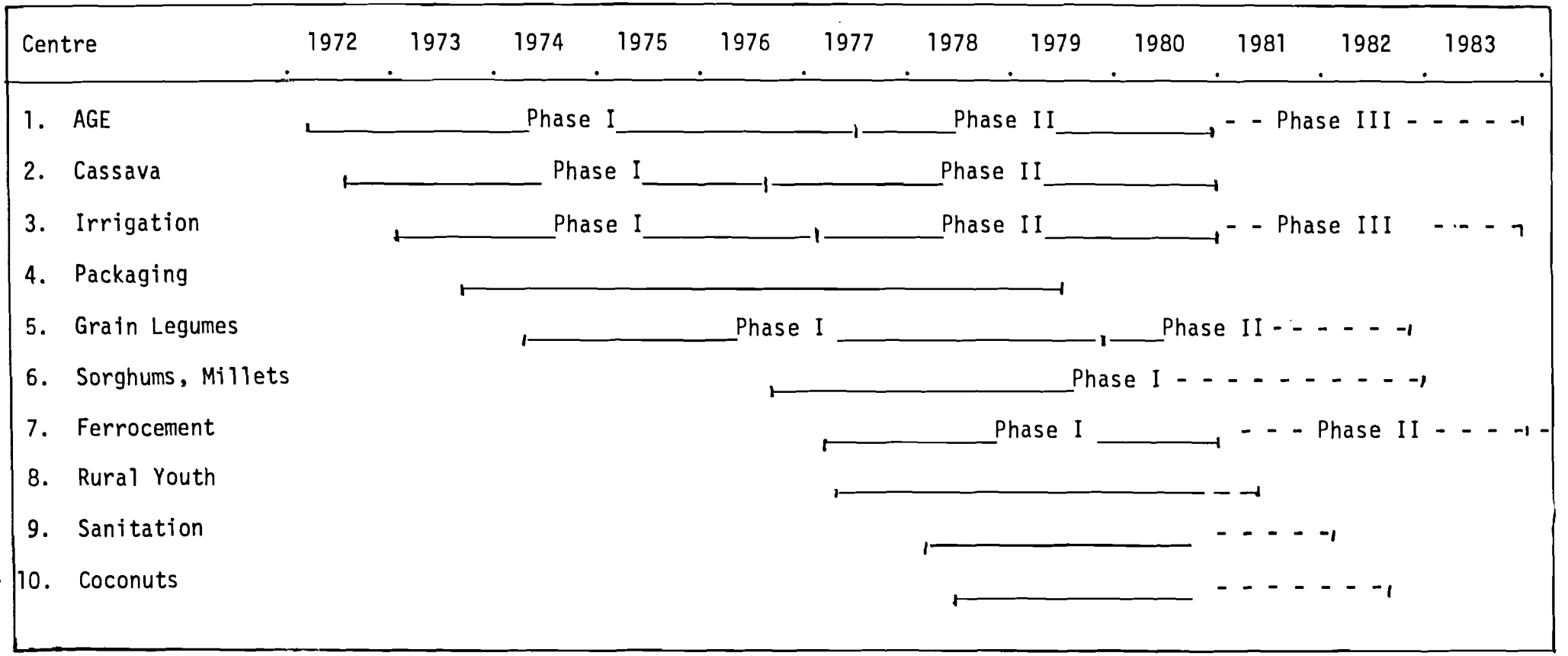
3/ - Phase III approved, and included in these figures.

4/ - Includes $35,000 from USAID, and $73,000 from New Zealand, with Phase II due to terminate in 1983.

5/ - Figures taken from PNM'S - Project summaries not approved at the time of writing.

6/ - Totals may not add due to rounding.

FIGURE 1 - Calendar of Specialized Information Centres, 1972 - 1983[1/]



1/ Approval and termination dates used to indicate Phase duration.

2/ Buffalo, and Dates and Palms PNM's drafted in 1980.

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Evaluation Framework

1.10 A brief review of the literature on the evaluation of information systems reveals the following relevant characteristics:

(a) very little work on the evaluation of specialized information centres, e.g. the UNISIST "Guidelines for the Evaluation of Information Systems and Services" contains a selected bibliography of 227 references, not one of which refers to specialized centres;

(b) a much higher proportion of papers on theoretical methodology than of empirical studies;

(c) a strong emphasis on "conventional" systems, such as library services, indexing, document retrieval, and so on;

(d) no empirical work that extends to valuing information beyond the immediate user, i.e. following the concept outlined in 1.2 above, that the intimate link between an information system and the research process that it serves means that the "true" benefits of the information system are determined by the degree to which its services contribute towards the attainment of research goals.

1.11 There are clearly good reasons for the lack of work in this area. Evaluation at the user level requires survey questionnaire techniques which are already expensive and time-consuming enough without attempting to go further. The results are probably adequate for most decision-making purposes. The specialized

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information centres in developing countries are quite recent and unique. Also, and by no means least, the measurement of research benefits and their apportionment to the various components that serve the R & D process are formidable tasks. In many cases, the data collection and analytical problems will be insurmountable, or only possible to overcome at a cost greater than the value of the contribution to decision-making. There are no good reasons to suppose that the few resources that IDRC and the centres can devote to this exercise will be able to make significant inroads to solving the problem.

1.12 However, having struck the necessary note of realism, it is not proposed to put aside the concept. It is worth recalling that many private industries employ systems that have most of the characteristics of the specialized centres, particularly those of the symbiotic relationship of the researcher and the documentalist, and the synthesis of information. This indicates that in the context of an integrated system of research-development-sale-profit, the benefits of such services can exceed their costs. The context of the specialized centres under consideration in this series of reports is of course very different; dispersed and disintegrated efforts in many nations (and languages), aiming at socio-economic development benefits of varying degrees of tangibility. The value of the service needs be no less because of this. Certainly the need is no less. The most important management goal is to ensure that the nature of the service is as close as possible to the optimum. This evaluation exercise therefore proposes to employ the following methodological framework as a guide throughout, even though it may not prove possible or practical to assess all components empirically. Cause and effect are not easy to

establish in the simplest systems, and the best that might be hoped for is "virtue by association" within a logically argued case.

1.13

RESEARCH PROCESS

Specialized Information Centres →	Abstracts Newsletters Q.-and-answer Manuals etc. →	Users →	Research Benefits
Evaluation	Stage I "Operational"	Stage II "User"	Stage III "Economic"

Stage I. Basic information on background and project operations is provided at this stage. The origins of the project are described: the source of the request, the definition of need, the role of the host and donor institutions, and project objectives. The actual results achieved are compared with the intended objectives and any changes in objectives are noted. Cost per unit of various products and services are calculated where possible.

1.14 Stage II. At this level, the judge of value is the user, and evaluation focuses on user needs, i.e. demand, (composed theoretically of expressed and unexpressed, or latent, needs) and the services of the SIC, i.e. supply. How effectively does the centre meet the demand? Some of the important performance criteria of effectiveness are:

(i) penetration - comparing the number of actual users with the number of potential users.

(ii) coverage - the extent to which the data base covers the specialist field of knowledge.

(iii) recall - measuring the proportion of relevant items supplied to meet a user request.

(iv) precision - measuring the proportion of irrelevant items supplied to meet a user request.

(v) speed - time taken to supply user needs.

(vi) user effort (or "comfort") - the investment in time and money required by the user to utilize the service.

These are the standard criteria for assessing conventional information retrieval and dissemination systems. Such systems generally do not synthesize information to the same extent as the specialized centres, therefore the value of synthesized material to the user will need particular attention. Of course, "synthesis" is a matter of degree and it can be argued that even producing an abstract is synthesizing. However, the specialized centres usually go beyond this level to the production of newsletters, monographs, manuals on particular topics, and so on.

1.15 Stage III. This area looks at the social and economic benefits of the research process and the degree to which the information services contribute towards the attainment of those benefits.

At the level of the individual researcher or institution, user surveys, interviews and analysis of other systems, should allow valuation of:

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- the difference between the cost of the specialized service and the cost of supplying similar products and services by other means;

- the time saved by using the specialized service rather than alternative means;

- the costs saved by avoiding duplication of research;

- increased productivity, through higher output per unit of input; higher value of output because of better informed resource use; production of the same output in less time;

- benefits from the utilization of results and the contribution of specialized centre services to the results, including any specific examples that can be identified.

(Some of the above may seem to fall more under Stage II consideration - and certainly the distinction is not entirely clear cut - but the focus here is on the costs and benefits of the research process, not the information system.)

1.16 One difficulty lies in the fact that a "negative" research finding or piece of information does not necessarily indicate low or negative value. If the information system has enabled the negative result to be reached sooner than it otherwise would have been and has thereby allowed resources to be switched to exploring other possibilities, then it has performed a valuable function. Also, an SIC is only one of several suppliers of information to users in a research process. No particular SIC can fulfil all the information needs of its users, e.g. the techniques for operating an electron microscope may be needed in cassava research, but are not

necessarily supplied by the cassava SIC. Thus, as well as the problem of sharing the credit for research benefits among the various components of an R & D process, within the information system pertaining to that process, it may be difficult to attribute the source of a particular piece of information. Indeed, if it takes more than one "sighting" to lodge something in a researcher's memory, and if complementary items of information from various sources are needed for successful research, then all sources should be credited and all are needed. Thus perhaps the focus of evaluation should be more on SIC's as complements to other information services, rather than as alternatives.

1.17 The underlying theme of this framework is that the objectives of the users of research results and information centres are pre-eminent. If their goals are met, those of the institutions supporting these activities are also met. The aim of the evaluation is, in simple terms, to learn how to serve those objectives better. The exercise should provide information to the institutions hosting the centres, and to IDRC, on how the effectiveness of their involvement might be increased; on how best to tackle the different information problems of various specialized areas of research; and on issues such as subscription policy and long-term financing.

Proposed Approach

1.18 The program overview in this paper aims to describe the program; to propose an evaluation framework; to identify issues requiring further elucidation; and to suggest the most appropriate candidates for case study evaluations.

The overview is based on the Ottawa data base, i.e. the information readily available in IDRC Ottawa files in the form of project summaries and reports (progress, final and financial) and in sundry publications. It therefore provides a "state-of-the-art review" of this data base and knowledge of where the gaps are as far as evaluation in concerned.

1.19 It is intended to approach the evaluation step-by-step beginning with this overview report. Thereafter, a series of case study reports will be produced, evaluating individual centres, or groups of centres in detail. One reason for this approach is the belief that evaluation should not be considered as an activity conducted once at a particular moment and then dropped. To be of real value it must be a continuous process and an aid to good management, not a burden on it. Indeed, the formal evaluation of the SIC program does not begin with this report: two reports have already been prepared. The final report from the Cassava Information Centre contains some results from a survey questionnaire, and an IDRC funded consultant has prepared a report on the International Irrigation Information Centre (IIIC). It is hoped that evaluation work will continue beyond the series of case study reports, and will be carried out by the individual centres themselves, and by IDRC. As part of IDRC's input, consideration might be given to going beyond the case studies and conducting or supporting research into the different routes along which information travels to researchers and end-users. Out of these efforts will emerge management information and policy direction for the centres and for the program as a whole. To talk of a "final" report is inconsistent with the philosophy of evaluation as a continuous process, however, following the case study evaluations, it is intended to produce an overall program assessment based on the more detailed information provided by the studies.

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II

ORIGINS

Specialized Information Centres at AIT

2.1 The Asian Institute of Technology (AIT) in Bangkok is host to three IDRC supported SIC's, and the Centre's program began there in 1972 with the then "Soil Engineering Information Centre", now called AGE (see Table 1). A meeting in 1971, in Bangkok, of the Asian National Societies of Soil Mechanics and Foundation Engineering, recognized the serious shortage of information about soil mechanics problems, research and projects and about foundation engineering, rock mechanics, engineering geology and earthquake engineering. As a result, the Societies requested AIT to establish an Asian information centre for this field. IDRC support was approved in 1972.

2.2 A proposal for an information centre on ferrocement in New Zealand was turned down by IDRC Projects Committee in 1974, largely because of the proposed location. A year later, another informal proposal for a centre in Bangkok could not be considered because of lack of funds. A Centre was finally established at AIT in 1976 with funds from USAID and the New Zealand government. IDRC support commenced early in 1977 and aimed at expanding the level of activities already started.

2.3 Through an IDRC project, an extensive information survey was carried out for the preparation of a state-of-the-art technology and literature review in Sanitation (3-P-76-0156). It became obvious early in the project that sanitation problems of LDC's were very poorly covered by existing

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information sources. The need was clear for a permanent service to fill this gap and to continue the information collection and dissemination started by IDRC with the publication of its book "Low Cost Technology Options for Sanitation." In 1978, AIT hosted a conference on "Water Pollution Control in Developing Countries," at which a questionnaire was distributed to all participants covering the need for an SIC on sanitation. There were 55 responses from 16 countries, with universal support for the idea. AIT'S Regional Documentation Centre, housing AGE and IFIC, had been set up in 1977, as well as a regional computing centre. The aim was to centralize the common components of all its information activities into these centres.

Direct involvement of the appropriate faculty, and the sharing of a large portion of documentation and computer overhead, meant that separate funding only had to be found for a relatively small part of the total costs of an SIC. These reasons, plus the existence of its Environmental Engineering Division, made AIT an appropriate host for the Environmental Sanitation Information Centre (ENSIC), which was set up in 1978.

Agricultural SIC's

2.4 The first of the agricultural commodity SIC's concerned Cassava and was established at CIAT in 1972. The Cassava Centre began with the collection of documents and compilation of a basic bibliography by the Library and Documentation Services Unit at CIAT. Since CIAT was already an international centre of excellence for cassava research it became the obvious candidate for the information centre.

2.5 Towards the mid 1970's, the development of agricultural SIC's was more consciously promoted and coordinated in the context of the intentions for an "AGRIS Level 2." AGRIS is a worldwide agricultural information program operated by the Food and Agricultural Organization (FAO) of the United Nations. Two activities were identified when the program was conceived:

(1) the creation of a single worldwide data base in the agricultural sciences from which current awareness services could be offered (Level 1); and

(2) the need to coordinate specialized services in agricultural documentation so as to achieve a concentration rather than a duplication in subject sub-disciplines, (Level 2).

Although there is still no overall structure that can be identified as "AGRIS Level 2," the need to coordinate a network of SIC's has always been prominent in IDRC planning of agricultural centres. The IARC's have been preferred as host centres of excellence because of the researcher-documentalist symbiosis that they facilitate and because they serve an international clientele. They also have international funding and are more able to take the SIC's into their core budget eventually.

2.6 The International Institute of Tropical Agriculture (IITA) already had an important research program in cowpeas and other grain legumes. At the planning stage, the IITA library had recorded about 3,000 references on cowpeas and had acquired some of the documents. The proposal to establish an SIC at IITA was strongly supported at a Grain Legume Improvement Workshop held in early 1974. The project was approved later that year.

2.7 The sorghum millets centre at ICRISAT, another IARC, had similar beginnings. In keeping with a Centre focus on the semi-arid tropics, which have suffered in the past from a dearth of research and information activities, an SIC at ICRISAT was identified as a priority. At a meeting in Washington in 1975, various sorghums and millets information service options to LDC's were discussed, together with ICRISAT's role in the emerging information network. The project was approved in late 1976.

2.8 In terms of the need to resolve some of the problems of the semi-arid tropics, the case for irrigation R & D and the associated information services is not in question. Neither is there any doubt about the location from a technical point of view - the entire state of Israel could, without exaggeration, be described as a centre of excellence in irrigation matters. However, there are political facts of life which put its overall suitability in question. An original proposal for an irrigation research centre in Israel was not accepted, and the subsequent proposal for an information centre was considered in a climate of tacit welcome by many Arab states. After the decision to set up the centre was reached in 1972, the 1973 war and its aftermath seriously obstructed the implementation of that decision.

2.9 Documentation activities in areas of importance to other divisions have been allotted priority "A" by the Ad Hoc Committee of the IDRC Board of Governors. Coconuts as a staple crop fall into this category. The Coconut Centre is located at a national institution, not an IARC. However, the Coconut Research Institute (CRI) of Sri Lanka has been

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in existence for almost 50 years and is well placed to serve an international clientele. It also has a library and publications unit which perform some of the activities (bibliographic work, current awareness bulletin) on which an SIC could be built. The project was started in 1978.

Other SIC's

2.10 At an IDRC-supported meeting of the World Packaging Council in Hong Kong in 1973, participants expressed a "felt need for packaging information" and strongly recommended "the establishment of a central body to actively collect and disseminate packaging information on a regular basis and to provide answers to ad hoc enquiries." Subsequently, the project was initiated in 1974.

2.11 The SIC Rural Youth was already a going concern when the IDRC-supported phase began in 1976. This phase maintained existing services and added others.

Issues Raised

2.12 This brief sketch of the "origin of the species" illustrates some of the distinguishing features of IDRC's modus operandi. The Centre takes pride in responding to needs as felt by its clients, the LDC's. However, without implying in any way that the SIC program has been imposed, IDRC has taken the lead in this field and the centres have been established through a judicious mixture of response and suggestion. Given the distinctive nature of the IS Division with its emphasis on mechanisms facilitating the research process rather than support of research per se, and given the innovative

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character of the SIC's, such a blend was clearly necessary. The current emphasis is more on response than suggestion, and the IS Division has a long list of spontaneous requests for SIC's. Thus selection criteria are required to help choose candidates for funding. The present criteria upon which the decision to set up a centre is based are, in short form:

a) the existence of a widespread need
b) able staff to do the job
c) a subject in an IDRC field of interest
d) location at an active research establishment
e) the prospect of useful results in a reasonable time
f) the prospects for long-term funding by the host institution.

It can be argued that "widespread need" is absolute and, particularly for an activity serving research in a numerous, dispersed community of countries, the extent to which IDRC responds or suggests is immaterial, as long as there is a consensus about the importance of the gap being filled. Beyond that, the focus of energies should be on meeting the need in the most appropriate way.

2.13 Criteria b) to f) above are questions of in-house judgement that the Centre as a donor can legitimately make. But the question of consensus on the existence of a widespread need for an SIC in a particular specialty field demands satisfactory settlement, as much for the success of the SIC as for the alignment with IDRC's basic belief in the pre-eminence of the LDC's priorities. Now that ten centres have been established, it may be considered that this is an appropriate time to take a step back and review how decisions are made

on subject fields for future SIC's. It would be useful to assemble material on the universe of special subjects in agriculture, health and social sciences; on the information systems in place to serve R & D in these subjects; how well they perform in meeting LDC needs; and where the gaps are. LDC participation would be necessary for consensus. This is not to suggest that a master plan is needed, (another IDRC "motto" being to avoid paralysis by analysis) but that the SIC program could increase effectiveness and maintain its success rate by using the information contained in such a review as an aid to future decisions.

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III

AIMS AND OUTPUT

3.1 Broadly speaking, all ten centres have succeeded in the sense that the intention to establish them and their products has become reality . There have been delays and frustrations, and for some it is early to judge their degree of consolidation, but generally achievements have been real. Three of the seven that have completed a Phase I or II are continuing without Centre funding (Cassava, APIC and Rural Youth). Two others - AGE and Ferrocement - have good prospects of continuing on their own following a further phase of limited Centre support each.

3.2 Table 3 provides an inventory of the various products of the seven more firmly established centres, giving the frequency of publication (quarterly, annually, etc.) and data on number of subscribers, or recipients on the mailing list. For all these centres, the results have matched the intentions, although, of course, this broad picture omits relevant information on timing and quality of product. In simple terms, the activities of the centres tend to follow a similar pattern:

(a) to collect reproducible copies of as much of the known literature on the special subject as is consistent with user needs and practical constraints;

(b) to prepare an abstract of each item, enter it in an index and store it in a system from which both the actual document and its reference and abstract can be retrieved quickly;

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TABLE 3 - Inventory of Products of Established Information Centres

Centre	Name of Product	Rate of Production	Usage
AGE	Asian Geotechnical Engineering Abstracts	Quarterly	379 subscribers
	AGE Current Awareness Service	Quarterly	
	AGE Journal Holdings List	Annual	
	AGE Conference Proceedings Holdings List	Annual	
	AGE Research Report Holdings List	Annual	
	AGE News Newsletter	Quarterly	
	AGE Digest Volume I 1978-79 Volume 2 1980-81	Every 2 years	
	Photocopy, reference service, data base		
Cassava	Annotated bibliography-Abstracts	Annual	900 mailing list
	Abstract Cards	Monthly	
	Cassava Newsletter-English and Spanish	Quarterly	2 400 mailing list
	Monographs, Manuals, Reprints	11 unique	
	Table of Contents	Monthly	
	Thesaurus	One	
	Cassava Workers Directory	One	
	Brochure Photocopy Specialized searches }	Services	

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TABLE 3 (continued)

Centre	Name of Product	Rate of Production	Usage
IIIC	Irricab-Annotated Bibliography	Annual	287 circulation
	Irrinews-Newsletter in English	Quarterly	2 813 circulation
	Irrinoticias-Newsletters in Spanish	Quarterly	969 circulation
	Manuals, Special Publications	3 unique	3 000 copies sold
	Brochures	Several	
	Question-and-answer Translation Photocopy } Services		13 (1980) 2 n.a.
APIC (Packaging)	APIC Journal-Abstract	Quarterly	25 countries
	Updating Service on Key Subjects	Monthly	
	Study Reports (Specific Topics)	4 unique	
	Training Kits	7 sold	
	Data Bank List of Consultants Machinery, materials suppliers } established		
	Enquiry Service		100/year
Grain Legumes	Tropical Grain Legume Bulletin	Quarterly	1 055 mailing list
	Grain Legume Current Titles	Fortnightly	
	Abstracts of World Literature (2 on Cowpeas; Groundnuts; Winged Beans)	4 unique	
	Thesaurus (1977)	1 unique	
	Enquiry Service		

TABLE 3 (continued)

Centre	Name of Product	Rate of Production	Usage
IFIC (Ferro-cement)	Journal of Ferrocement Abstracts	Quarterly	336 member/ subscribers in 58 countries
	Focus (brochure)	1 unique	14 languages
	Monographs	2 unique	
	State of the Art Review	1 unique	
	"Ferrocement and its Applications: A Bibliography"	1 unique	
	Do-it-yourself Booklets	4 unique	
	Photocopying service		
Rural Youth	Bibliografia sobre Juventud Rural	Quarterly	1 500 mailing list
	Directory of Users	1 unique	
	Promotional Brochure	1 unique	3 000 distributed
	Compendidos de Publicaciones sobre Juventud Rural-Abstracts	Biannual	1 500
	Cumulated Bibliography	1 unique	
	Photocopying Service		
Sorghums Millets	Newsletter	3 per year	
	Bibliography (French)	1 unique*	
	Question and answer service		
ENSIC (Sanitation) Coconuts	some output, but not really "off the ground" yet.		

* 3 more in preparation

(c) a thesaurus of indexing terms may be needed to complete (b);

(d) to assemble, publish and distribute a bibliography of the collected material and keep it up to date as the literature grows;

(e) to keep users in the field abreast of current events by circulating a regular newsletter, giving recent research results, current problems, conference and seminar announcements, publications, etc.;

(f) to facilitate contacts between users by compiling, publishing and circulating a directory of workers and institutions in the special field;

(g) to produce irregular publications on various important sub-topics, written at a level appropriate to a particular group of users - researchers, extension workers, students;

(h) to provide various services such as question-and-answer, photocopies or requested documents, translation;

(i) to train staff as necessary to carry out these activities.

3.3 This brief description, together with the summarized inventory in Table 3, should be adequate to demonstrate the magnitude of the task and why it might take a number of years to reach the stage when the data base contains all important past literature and the centre is managing to keep up with the annual additions to the literature and to select out and

synthesize the key topics. As an example, the establishment of the Grain Legume Centre (IGLIC) in IITA required the collection of 3,241 entries on cowpeas alone; in fact the centre was obliged to focus its early efforts mainly on cowpeas. The literature collection to start the Cassava Centre at CIAT comprised 3,100 documents by the end of Phase I. Thus, the basic first step of collecting all the relevant literature can demand considerable time and effort.

3.4 It is possible that an organization that has to gradually gear up in this way to coping with a large volume of literature could become carried away by its own momentum. Then it may be less able to adapt the nature of its products and services in response to changes in user needs. Parts of the service can outlive their usefulness [and indeed occasionally "some specialized information centres can and should die because the fields of science they serve cease to be active" (1, page 32)]. Thus, at a certain stage the nature of what is produced becomes much more important than the quantity. The Cassava Centre has reached the stage of being concerned about this and has already consulted its users through a survey, the results of which are included in the evaluation report written at the end of Phase II. Discussion on this subject is continued in Section VI on "Evaluation Work."

IV

RESOURCE USE

4.1 The term "resource use" is chosen deliberately in preference to "costs" as a reminder that the emphasis of evaluation work is on the value obtained from using resources one way rather than another. Cost data do not always give an accurate picture of the extent of resource use. The main categories of resources used in specialized information centres are:

fixed.....buildings, fixed equipment

moveable ....office equipment, vehicles, computers, reprographic equipment, document collection

human.....professional, technical, administrative and support staff

services.....publishing, printing, postal, travel

materials....paper and publishing materials.

The greatest investment in fixed and moveable resources occurs during the start-up period. When a centre is a going concern, the use of human, service and material resources increases and tends to be closely related to the volume of output.

4.2 The sharing of total resource use between the recipient or host institution and IDRC cuts across the above categories and is not rigidly defined. However, the tendency has been as follows:

fixed.....usually the recipient institution supplies all the fixed overhead costs

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moveable.....basic office equipment is supplied by the recipient; IDRC has often contributed specialized equipment, such as microfiche and optical coincidence equipment.

human.....typically the project leader, a senior person in the host institution, is funded by the recipient, or occasionally shared; IDRC funds project-specific staff such as documentalists, technical and secretarial help, and consultancies; some secretarial support is shared; and usually administration, accounting, support and scientific staff inputs are not covered by IDRC's contribution.

service materials.....apart from staff, the bulk of the IDRC grant covers this area, especially travel, training, and the direct costs of the product of a centre (purchase of literature, photocopying, printing, publishing, mailing, promotion, etc.); the recipient may supply library and computer services.

4.3 An accurate picture of the total annual costs of running a centre is necessary for its effective management, for example, to keep a check on unit costs of the various products and services. The annual, on-going costs of running a centre are composed of two elements:

(a) the portion of the capital investment in fixed and moveable resources being consumed each year, with their related maintenance and repair costs; and

(b) the regular operating costs of human resources, services and materials.

It is difficult to obtain an indication of what the overall resource use of the centres is from the data available on IDRC files. This information is naturally oriented towards accounting for those items funded from the Centre contribution, and, as indicated above, this is not intended to cover all costs. The recipient contribution is covered briefly or not at all. Also, because most of the centres are run in much larger institutions, there are many fixed, moveable and human resources whose use is shared, and apportioning the various shares would probably be complex, even with a streamlined cost-accounting system. The extent of such shared costs usually remains mostly hidden.

4.4 The data on Table 2 is of limited assistance and could be misleading. As Figure 1 shows, the data cover a different number of phases of varying duration for each centre, and the last two centres (Buffalo, and Dates and Palms) are not off the drawing board yet. Also, the extent to which the recipient contribution figures give a good indication of the cost of resources supplied by the recipients is questionable. In short, it cannot be concluded that 10 centres have been established at a cost of about $5 million.

4.5 The Irrigation Centre (IIC) in Israel is unique in that it is to date the only centre for which a host institution was specially created. All the others have been housed, physically and administratively, in existing institutions. This means that the costs of running the Irrigation Centre represent fairly closely the cost of all resources used by the centre. The centre of excellence that acts as host to IIIC is the Volcani Centre of the Israel Ministry of

Agriculture, and the local contribution includes an amount to cover the cost of this overhead. An analysis of the operations of the centre was carried out in June 1980, but it focuses on the technical and operational aspects of producing the services and publications and provides no budget data. However, it does indicate that the total budget of the centre runs at about US $215,000 of Can $256,000 per annum. Comparisons with other centres are complicated by several factors: the location of IIIC leads to special difficulties; the centre does much more information evaluation than other centres; and it employs more full-time staff. Recent very high inflation and currency devaluation also make comparisons unreliable.

4.6 Bearing these factors in mind it is still worth examining cost data from other centres. Estimates of annual costs for some other centres are as follows:

	Can $ per year
AGE (AIT)	50,000 to 65,000
Cassava (CIAT)	65,000
Packaging (Hong Kong)	38,000
Grain Legumes (IITA)	130,000 to 155,00
Ferrocement (AIT)	40,000 to 66,000
Rural Youth (IICA)	40,000

Most of these estimates include some allowance for office overhead, particularly the higher figures in those cases where a range of estimates is given. Even accounting for the higher prices in Israel and any differences in the quantity and nature of the product, it is possible that the "disguised" overhead for those centres hosted in centres of

excellence is significant, and that the financial data given in project summaries and final project reports tend to understate the total cost of the resources used in running the centres. It is likely that some of these costs are not strictly overhead, but are not reported because they are not easily extracted from the host institutions' accounting systems.

V

REVENUES AND FINANCING

5.1 The three main sources of revenue for the information centres are:

- from the host institution
- from external donors, such as IDRC
- from subscriptions, membership fees, sales of services and products.

Some rough estimates of the proportions of the total funding drawn from these three main sources is given in Table 4 for some of the more mature centres. Without further apology for the reliability of the data, the estimates are sufficiently sound to support the claim that the level of self-financing from sales of products and services is generally very low. It is also true to say that the group of centres that has the greatest chance of covering at least all direct costs is that in the Asian Institute of Technology (AIT). A Regional Documentation Centre (RDC) has now been established in AIT. It houses four specialized information centres, three of which have been or are being supported by IDRC. These are:

AGE	- Geotechnical Engineering	(IDRC)
IFIC	- Ferrocement	(IDRC)
RERIC	- Renewable Energy Resources	
ENSIC	- Environmental Sanitation	(IDRC)

The total number of subscribers to these centres is now 1,175 from all over the world. The RDC is run in a business-like fashion with a deliberate policy of discriminatory charges to

attain as high a level of self-sufficiency as possible. Membership fees are higher for industrialized countries than for LDC's. Charges are made for document reproduction, reference and bibliographic services.

TABLE 4 - Breakdown of sources of revenue to Information Centres

Centre	Source			Total 2/
	Host Institution	External 1/	Sales and subscriptions	
	(% of total annual costs)			
AGE	28	49 3/	23 8/	100
Cassava 4/	96	-	4	100
IIIC	29	64	7	100
Packaging 5/	100	-	-	100
Grain Legumes	27	73	-	100
Sorghums, Millets	24	76	-	100
Ferrocement 6/	35	26	39 8/	100
Rural Youth 7/	100	-	-	100

1/ All IDRC, except the Ferrocement Centre which also received funds from USAID and the NZ Government.

2/ The estimates of total annual costs were used here and the contribution of host institution was assumed to be the balance after deducting income from sales and subscriptions, and external donors.

3/ This refers to the last year of Phase II.

4/ This centre is now funded by CIAT. The subscription income estimate is based on the final report - 600 members @ $8, plus some photocopy income.

5/ There is some income from subscriptions and sales of training kits, but no data is given in the final report.

6/ The final report gives 56% self-sufficiency. NZ had pledged a further US $15,000 per year up to 1983. These figures are tentative.

7/ There is no report of any fees charged. The centre is funded by IICA and CIDIA.

8/ If only cash costs are considered, AGE is 50% and IFIC is 56% self-supporting.

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5.2 On the other hand, the centres hosted by the International Agricultural Research Centres (IARC's) - Cassava; Grain Legumes; Sorghums and Millets, do not have a self-financing policy. Although charges are made for some services and, in the case of Cassava, a $16 membership fee is levied, the charges are not aimed at cost-recovery, and it is not the intention of the centres to maximize the level of self-financing.

5.3 The International Irrigation Information Centre is perhaps the centre for which the question of sources of revenue is most serious. Although important for many of the other centres, it is less urgent for them. A third phase for the Irrigation Centre has been approved by IDRC, on the clear understanding that other sources of revenue are sought. The evaluation carried out commended the centre on the quality and value of its output, and emphasized that it usually takes three to five years for a new centre to become firmly established. The IIIC has succeeded despite the difficulty of trying to balance the need for cost-recovery on one hand with subsidies to LDC's on the other. The centre is moving forward with renewed hope based on continued IDRC support, some funding from the State of Israel, and a satisfactorily concluded marketing agreement with Pergamon Press. However, further core financing will be needed at the end of Phase III if the centre is to survive.

5.4 The Packaging Centre (APIC) achieved the transition from external support quite smoothly and is currently supported by the Hong Kong Packaging Council and the Asian Packaging Federation. The demand for its products is growing, and some revenue is obtained from sales. The level of self-financing cannot be ascertained from the reports at hand.

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5.5 The Rural Youth Centre also continues successfully after IDRC involvement. It operates in the Centre Interamericano de Documentación e Información Agricola (CIDIA) with funding from the Instituto Interamericano de Ciencias Agricolas (IICA). It supplies free services.

5.6 This rather patchy overview of revenue and financing raises some important issues which should be examined in greater depth.

(a) Research information may often be supplied free, but it has a cost of production and a value in that people are willing to devote time and money to obtain it. The difficulty of obtaining financing for the information centres may be at least in part because the perception of this value is not widely shared. Clearly an evaluation could be useful in making the value of the various products of the centres more widely appreciated. When there is more general acceptance of the value of an "intangible", "free" good, (e.g. clean air) funds are usually made available to obtain or maintain its supply.

(b) The question of who should pay for the information - the users or the suppliers - is complicated in practice by two factors. First, the users have widely differing ability to pay. The research processes that the centres are serving are aimed at LDC problems and to a large extent therefore the information is aimed at LDC users. These users, and the institutions in which they work, are less able to pay the real cost of the centres' services than their richer industrialized counterparts. This is essentially why IDRC funds the SIC's. Second,

the supplier's (or host institution's) interest *may* be narrower than the coverage of its products. For example, a regional or national institution providing an international service might have difficulties providing a free service to users in regions or countries other than its own. If it is accepted that the international community should pay, some of the main options are: for industrialized country users to subsidize LDC users by paying higher-than-cost fees; for international aid agencies to provide long-term core support for the centres; or a blend of the two.

(c) Essentially part of the above, but worthy of separate mention is the role of IDRC. If the Centre is to remain a short-term support, "seed money" agency, it will clearly be necessary to establish the long-term financing prospects of a centre before agreeing to help with setting it up. On the other hand, a pioneer role in this field implies recognition of the value of specialized information centres ahead of others, and consequently a greater obligation to maintain support until the centres are firmly established and permanent financing arrangements can be made. (The pioneer role also implies a need to demonstrate the value of this activity to other potentially interested parties - see (a) above).

(d) Charging users, however nominally, for the services and products of a centre has a value apart from the obvious one of providing a useful, and in some cases, essential source of revenue. Charging users prevents trivial requests and is a way of informing people that information has to be paid for. Also, where there is no charge, there

is no feedback to the supplier about the degree to which *the* nature and quantity of the product meet user needs. Once a charge is made, the user begins to have rights and the supplier begins to receive signals about his product. The signals may be crude and should not be the only factor influencing decisions about the services and products, but they will be significant and inexpensive. To take an extreme example, if, on instituting a nominal subscription fee for a service, the number of subscribers falls by 75 percent and shows no signs of recovery, valid questions could be raised about the value of the service. Thus, the advisability of continuing completely free services should be closely assessed.

VI

EVALUATION WORK

6.1 A considerable amount of formal and informal evaluation has already been carried out on the SIC's. The results of almost all the formal work are available in the Ottawa data base, in files, reports, project summaries and so on. Informal evaluation is, by definition, harder to pin down, since it consists mostly of the mental and back-of-the-envelope assessments made by managers, program officers and others during the implementation of a project. Such information can only be tapped during a more intensive case-by-case evaluation. In reviewing the formal work done to date, it is useful to follow the evaluation framework described in paragraph 1.13 above. Most work so far has been basic project evaluation (Stage I). Two formal reports are available which touch more on Stage II by concentrating more on user requirements. Of the two (Cassava and IIIC), the Cassava paper reports on a formal subscriber survey, whereas the Irrigation evaluation is more concerned with operational questions. Unsolicited user comments are reported for some of the other SIC's.

6.2 As noted previously, three of the ten SIC's (Cassava, Packaging and Rural Youth) have ceased their involvement with IDRC. At the end of IDRC support, a Project Completion Report (PCR) is written by the IDRC program officer concerned and, as is required at the end of every phase, the recipient produces a final report prior to receipt of final payment on the project. The PCR's provide a basis for further evaluation work and give the program officer an opportunity to record his or her assessment of

the project, thus establishing some kind of institutional memory. Without being completely rigid, the PCR's should cover six basic questions:

(1) What project results were achieved and did project activities and results follow project objectives and methodology?

(2) What did the project achieve in building institutional, managerial or individual scientific capability?

(3) What publication or dissemination of results have been achieved?

(4) What lessons were learnt which would allow IDRC to develop better projects in the future or to improve its policies and practices?

(5) What follow-up action, if any is required?

(6) Was the project worthwhile?

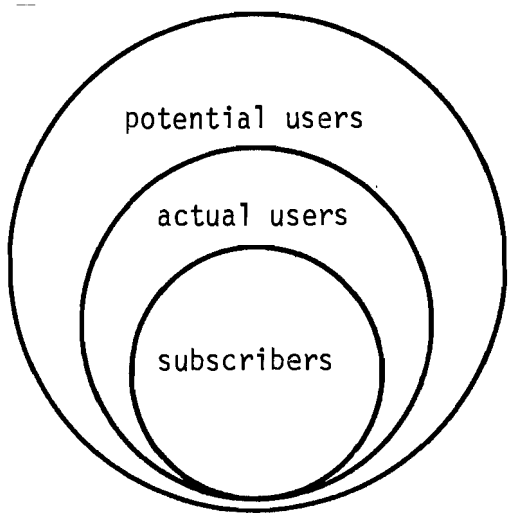
As commented in Section III above on Aims and Outputs, the seven firmly established centres have achieved their intended objectives (see Table 3). Hence question (1) above can probably be satisfactorily answered from existing material. [Also question (3) is largely irrelevant for SIC projects, since it should already be answered under (1)]. However, the other questions require the considered judgement of the program officer. At the time of writing, PCR's for the three terminated projects have not been prepared, since the PCR system has only recently been established in IDRC.

6.3 The final reports prepared by the recipient are required before the release of the final payment of a project and this tends to reduce the amount of direct criticism of project performance and IDRC's involvement. No firm guidelines are laid down for these reports and consequently the content varies widely. For example, the final report on the Grain Legume Phase I gives detailed information on the centre's mailing list (number of recipients by country, by region), whereas the Rural Youth report omits such information. Ironically, the Cassava final report for Phase II, which is the best from the point of view of user evaluation, also omits data on the distribution of subscribers. Clearly, such information is available and without imposing a too rigid requirement, perhaps some thought could be given to encouraging a basic level of uniformity in final reports for similar projects. It would be useful for program management to have basic data on (say) annual costs; number and distribution of subscribers (or recipients, if circulation is free); and earned annual income from subscriptions, sales and services.

6.4 It could be argued that it is a short-sighted view of the research process to imply termination of Centre interest in a project when the phase of IDRC support ends. As a general principle, unless the Centre adopts the appropriate perspective and follows up the research initiatives that it has supported into the development and utilization stages, it could be accused of failing in its mandate. In the particular case of the SIC'S it would be valuable to maintain a relationship with the centres after IDRC support ceases in order to have access to information on the long-run

experiences of the centres and thus be able to manage the current IDRC program to achieve the greatest short and long term effect.

6.5 The Cassava final evaluation report is worth discussing in more detail here because of the issues it raises. One of the most important points concerns subscribers and users. The following diagram serves to illustrate the problem.



This indicates a universe of potential users, within which the actual users of a SIC are contained. A successful SIC has a high ratio of actual to potential users, (the penetration ratio). The circle containing the subscribers (or names on the mailing list) is deliberately smaller than the actual users, implying that some users receive the service indirectly. The most obvious example is the user of a library which subscribes to the SIC. The diagram is over-simplified; the picture will not necessarily be the same for all the SIC's services and products. However, it raises the questions:

- how to identify and locate potential users?

- how to obtain information on their needs?
- how to check the correspondence between user's expressed needs and those of optimum R & D?
- how to meet those needs?
- how to equalize actual and potential users?

6.6 All the subscribers to the Cassava Centre pay a US $ 16 fee and receive the abstract cards, the cumulative volumes of the cassava bibliography, the manuals and newsletters. They were asked to rate the utility of these items by four orders of magnitude (very high, somewhat, little, none). More than 70 percent of respondents gave the highest rating to the first three products (cards, cumulative volumes, manuals) and about 50 percent indicated that the newsletter was very helpful. Bearing in mind that the response to the survey was 29 percent or about 180 replies out of 600, (raising the question: how representative are those who respond?), the results indicate a fairly high level of satisfaction. A deeper probing of the satisfaction of user needs on the basis of the criteria listed earlier (para. 1.13) might have been valuable: coverage, relevance, non-relevance, speed of service and "user comfort."

6.7 The report contains a section on suggestions made by the subscribers for improving the CIC. A lack of data on cassava utilization and prices is mentioned. This deficiency is clearly a constraint to planning and evaluating cassava research and development programs, and the CIC has had limited success in obtaining such information. Periodic publication of the directory of cassava workers is suggested as an aid to keeping researchers in touch with each other

on a global basis. Similarly, a request for more information on scientific meetings, training courses and seminars is made. However, channels of communication outside Latin America are as yet poorly developed. The question of completely free services is also raised and is related to that of securing non-conventional material; local up-to-date economic data and recent trial results. The CIC is prepared to allow subscribers to pay "in kind" by sending in such material and receiving the SIC products and services in return. Foreign exchange difficulties are obviated and worldwide dissemination of valuable information is achieved.

6.8 This selected miscellany of items indicates the range of useful feedback to the Cassava Centre from the survey. It is hoped that the case study evaluation will allow elaboration of these and other issues.

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VII

CONCLUSIONS

7.1 While there are clearly difficulties and doubts with some of the individual centres, there remains the general impression from this broad overview that the program as a whole has had, and is likely to continue to have, a considerable positive impact. Table 1 indicates actual expenditure by IDRC over eight years on 10 SIC's of just over $2 million, with a budget commitment of about $3.7 million that will cover an 11 year period. A simplistic comparison of this input with the inventory of products in Table 4, which only gives one indication of the breadth and depth of international research communication stimulated by the SIC's, suggests significant leverage for the Centre's involvement. Also, despite the cautions expressed in Section IV about cost data understating total resource use, it appears that the ratio of <u>total</u> investment to impact is favourable.

7.2 The Ottawa data base has not been consciously designed or co-ordinated to serve an examination of the SIC's as a program, yet it contains much useful information, (albeit dispersed). The data base shows a wide variation in quality, quantity and type of information between projects, with generally very little on the cost-accounting side. It is also apparent that a great deal of information exists mainly in the heads of Centre staff, who are able to perform efficiently as long as their memories are fresh and therefore inevitably postpone the recording of this information while pressure of work directs them to other tasks. This may be possible to sustain in the short term, but in the

long run, particularly as staff leave, there is a serious risk of inefficient functioning because of a weak institutional memory. (This factor alone would justify the case for project completion reports).

7.3 The Ottawa data base is of limited value for evaluation purposes, particularly at Stage II, since it is naturally oriented towards the process of budgeting and project accounting. The importance of this is undeniable, but at the same time it would be desirable if the Centre could give more encouragement to its clients to initiate and share the results of basic project monitoring for evaluation and management. However, the practical staff resource constraints that make this difficult to achieve are recognized. Also, as suggested in paragraph 6.3, some standardization of final reports would be valuable for the clients and the Centre, especially for programs consisting of many similar projects such as the SIC's.

7.4 Few would deny the experimental element of the SIC program, in that the R & D information needs in LDC's and the best way to meet them are yet imperfectly understood. The IS Division has taken a leading role in this field with the SIC's, and the kind of feedback that monitoring and evaluation can provide will be important to continuing in that role with confidence. Also, as mentioned in 5.6 (a), it would be useful to be able to demonstrate the value of the centres in order to improve the prospects of wider appreciation being followed by greater investment. Finally this overview has raised a number of issues which deserve closer evaluation.

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7.5 For example, decisions on the allocation of limited resources to SIC activities can be considered at two levels. First, is the choice of the special field: how to allocate between the many competing possibilities so that the highest priority fields are chosen? This issue is discussed in Section II (para. 2.13), and the recommendation made for an improved framework for decision making. Second, assuming the special field has been chosen, there are all the choices to be made about the location of the SIC and about the nature of the output it should produce to meet the defined needs most effectively (see para. 3.4). Related issues are the extent to which SIC's should, could and do serve the information needs of the extension/development process, as opposed to the research process; and how SIC's serve the needs of the user whose special field cuts across several SIC fields.

7.6 Finally, of vital importance to the successful creation and maintenance of the products and services of the SIC is the whole complex of issues on short and long term financing, the balance between charging and providing subsidized services to LDC users, and hidden overhead costs (see 4.6). These issues are raised in Section V (para. 5.6) and should be examined during the case study work.

7.7 It is recommended that the case study evaluations should concentrate first on those SIC's that have overcome initial teething problems and are established to the point of producing a regular output. The agricultural SIC's based in IARC'S form an important group, and of them, the Cassava Centre at CIAT is one from which a great deal could be learnt. It has several advantages: it was the first in the field;

it deals with a single commodity; it has already started Stage II evaluation work; and it has become successfully independent of IDRC support. It is therefore proposed to begin with the Cassava SIC as the first case study. The Sorghum and Millets SIC at ICRISAT has been slower to establish and is currently the subject of a consultant's study. Thus it is not an appropriate candidate for the near future.

7.8 The AIT SIC's could clearly contribute enormously to our understanding of non-agricultural SIC's funded through a teaching centre of excellence. The structure of AIT's Regional Documentation Centre and its policy of grouping SIC's to share overhead are particularly notable. AIT has already indicated informally some interest in an evaluation. Assuming that this can be realized, serious consideration should be given to examining the four AIT projects in a group, as the second case study. Although IDRC has not been involved with one of the four, and they are not all at the same stage of development, the usefulness of a group study would probably be greater than trying to extract one or two centres from the group. It would also provide an instructive contrast to the Cassava SIC case study which will attempt to evaluate separately one of a group of four, (since the CIC is now housed in a Documentation Sercices Unit with three other SIC's).

7.9 The subsequent case study program would be guided to a large extent by the experience of the first two exercises. The question of housing a SIC in a national institution is worth examining, and given the predominance of agricultural SIC'S,

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a third evaluation might consider the Coconut SIC - an agricultural centre in a national institution.

7.10 IDRC should build up sufficient experience to be able to offer guidance on built-in monitoring and evaluation mechanisms for the SIC's. In this way, the ideal pro-progression may be made from the Centre being active in the promotion and conduct of the evaluations, to being collaborator and advisor, privy to such work carried out by the centres themselves.

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